ARMY ENGINEER DISTRICT, SACRAMENTO SPK-05400
CORPS OF ENGINEERS Jul 88
SACRAMENTO, CALIFORNIA Revised Apr 89

TO: Architect-Engineers and District Personnel:

1. The attached revised guide specification supercedes the previous guide, SPK-5A, COLD-FORMED STEEL FRAMING, dated July 1988, and is for use in the preparation of project specifications.

TEXT REVISIONS
Para 1
Para 1.1
Para 1.3
Para 3.1
Para 11
Para 18

NOTE: A-E's should read all the TECHNICAL NOTES located at the beginning of this guide specification and edit the specification accordingly.

SPK-05400
Mar 1989

GENERAL NOTES

1. This guide specification is to be used in the preparation of contract specifications in accordance with the Sacramento District Specification Manual. It will not be made a part of a contract merely by reference; pertinent portions will be copied verbatim into the contract documents.

2. Where numbers, symbols, words, phrases, clauses, or sentences in this specification are enclosed in the following manner: [ ], a choice or modification must be made; delete inapplicable portion(s) carefully. Where blank spaces occur in sentences, insert the appropriate data. Where entire paragraphs are not applicable, they should be deleted completely.

TECHNICAL NOTES

A. This guide specification covers framing of the load-bearing light steel gage cold-formed type.

B. The section number will be inserted in the specification heading and prefixed to each page number in project specifications.

C. Paragraph 1: The listed designations for publications are those that were in effect when this guide specification was being prepared. These designations are updated when necessary by District Instruction, and references in project specifications need be no later than in the current District Instruction for this guide specification. To minimize the possibility of error, the letter suffixes, amendments, and dates indicating specific issues should be retained in Paragraph 1 and omitted elsewhere in the project specification.

D. Paragraphs 5 and 6: Grades indicated are grades normally used for this type of framing; however, other grades are available. See manufacturer's literature.

E. Paragraph 7: Galvanizing should be specified if members will be subject to moisture or corrosive atmosphere. Using coating Class G60 for members subject to moderate moisture or corrosive atmosphere and coating Class G90 for members subject to severe moisture or corrosive atmosphere.

INDEX

SECTION 05400

COLD-FORMED STEEL FRAMING

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COLD-FORMED STEEL FRAMING

PART 1 - GENERAL

1. APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1 American Society for Testing and Materials (ASTM) Publications:

A 446-85	Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dipped Process, Structural (Physical) Quality.
A 570-85	Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
A 611-85	Steel, Sheet, Carbon, Cold Rolled, Structural Quality.

1.2 American Welding Society (AWS) Publication:

D1.1-86	Structural Welding.

1.3 American Iron and Steel Institute (AISI) Publication:

Specification for the Design of Cold-Formed Steel Structural Members (1983).

1.4 Steel Structures Painting Council (SSPC) Specification:

SSPC-Paint 25-82	Red Iron Oxide, Zinc Oxide, Raw Linseed Oil and Alkyd Primer (Without Lead and Chromate Pigments).

2. GENERAL REQUIREMENTS: The AISI Specifications for the Design of Cold-Formed Steel Structural Members shall govern the work. All welding including, but not limited to design of welded connections, workmanship, technique, and qualification, shall be in accordance with AWS D1.1.

3. SUBMITTALS:

3.1 Certificates of Compliance: Certificates of compliance shall be submitted in accordance with the SPECIAL CLAUSES. Certification that each welder is qualified in accordance with AWS D1.1 shall be provided.

a. Studs
b. Joists

c. Runners
d. Purlins
e. Grits

3.2 Shop Drawings: Shop drawings shall be submitted for approval in accordance with the SPECIAL CLAUSES. Drawings shall include all shop and erection details. Members and connections for any portion of the structure not shown on the contract drawings shall be detailed by the fabricator and indicated on the shop drawings.

4. DELIVERY AND STORAGE: Deliver materials to the job site and store in adequately ventilated dry locations. Storage area shall permit easy access for inspection and handling. If it is necessary to store materials outside, stack off the ground, properly support on a level platform, and fully protect from weather as approved. Handle materials carefully to prevent damage.

PART 2 - PRODUCTS

5. 18 GAUGE AND LIGHTER STEEL MEMBERS: Steel members shall be formed from steel that corresponds to requirements of the following standards with a minimum yield of 33,000 psi:

a. Painted Material: ASTM A 611, Grade C
b. Galvanized Material: ASTM A 446, Grade A

16. 16 GAUGE AND HEAVIER STEEL MEMBERS: Steel members shall be formed from steel that corresponds to requirements of the following standards with a minimum yield of 50,000 psi:

a. Painted Material: ASTM A 570
b. Galvanized Material: ASTM A 446, Grade D

7. STEEL MEMBERS: Steel members shall be primed with paint meeting the performance requirements of SSPC 25 or shall be formed from steel having a galvanized coating conforming to ASTM A 446, [G60] [G90].

8. FASTENERS: Cold-formed steel framing manufacturer's standard or as indicated on the drawings.

9. ACCESSORIES: Cold-formed steel framing manufacturer's standard or as indicated on the drawings.

10. BRIDGING: 16 gauge or as indicated on the drawings.

PART 3 - EXECUTION

11. FASTENING: Fasten framing members together by welding or by using self-drilling screws. Welding procedure and electrodes or screw connections shall be [as recommended by the material manufacturer] [as indicated on the drawings]. Wire tying of components will not be permitted.

12. RUNNERS: Provide accurately aligned runners at top and bottom of walls. Anchor runners to floor and ceiling as indicated. Butt weld joints in runners or splice with channel inserts.

13. STUDS: Position studs vertically in runners and space as indicated. Install studs at jambs of doors and other openings 2 feet wide or larger. Provide jack studs over openings as necessary, to maintain indicated stud spacing. [Provide tripled studs at corners, positioned to receive interior and exterior finishes.] Fasten studs to top and bottom runners by welding or screwing both flanges to runners.

14. BRACING: For wall sections of runner channel welded or screwed to and cut to fir between studs, use hot- or cold-rolled steel channels inserted through cutouts in web of each stud and secured to studs with welded or screwed clip angles or metal strapping screwed or welding to both sides of studs. Provide the following minimum bridging in walls.

Loading	Bridging
Axial	Space not to exceed 40 inches between bridging and top or bottom track.
Transverse	Space not to exceed 5 feet between bridging rows or between bridging and top or bottom track.

15. JOISTS: Provide doubled joists under walls running parallel with joists. Joists shall have at least 1.50 inch of bearing and shall be reinforced over bearings where requiredd to prevent web crippling. Splice joists over bearings only. Lap and weld splices as indicated. Provide manufacturer's standard lateral bracing for joists which shall not be less than the following:

Clear Spacing	Bracing
Up to 14 feet	One row near center
14 to 20 feet	Two rows at approximately 1/4 span and symmetrically disposed about center span
20 to 26 feet	Three rows at approximately 1/4 span
26 to 32 feet	Four rows at approximately 1/5 span

16. PURLINS: Bracing as indicated on the drawings.

17. GIRTS: Sag rods as indicated on the drawings.

18. TOUCH-UP FIELD CONNECTIONS: Touch-up field connections and breaks in shop coating with the same material used for shop priming.

19. CONSTRUCTION QUALITY CONTROL: Attention is directed to SECTION: CONSTRUCTION QUALITY CONTROL which requires the Contractor to perform quality control inspection, testing, and reporting.

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- REMINDER -

Located at the front of these specifications are the Contract Clauses, Special Clauses and Division I GENERAL REQUIREMENTS of the Technical Specifications, which apply to every aspect of this contract including the work in this section whether performed by Prime Contractor, subcontractor, or supplier.